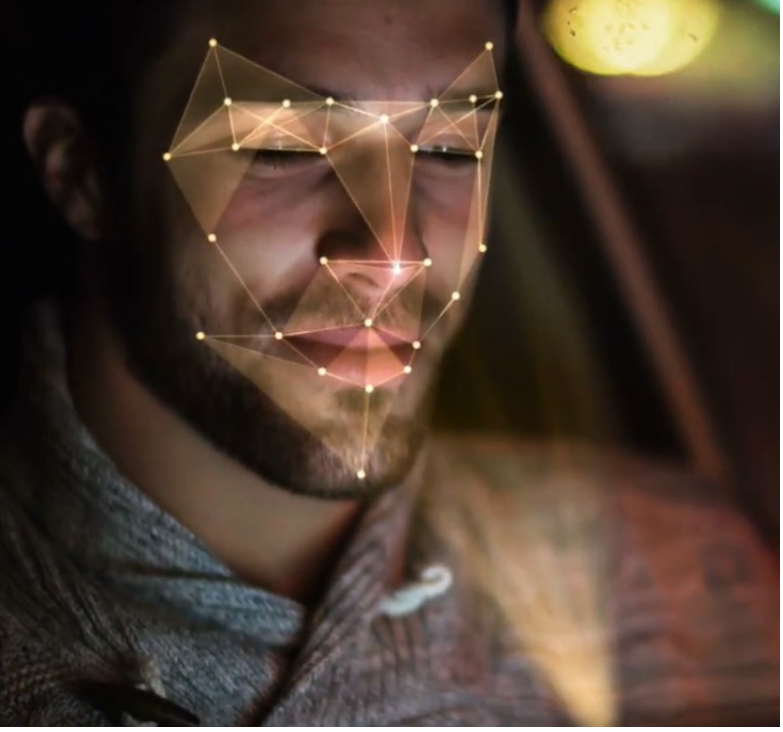

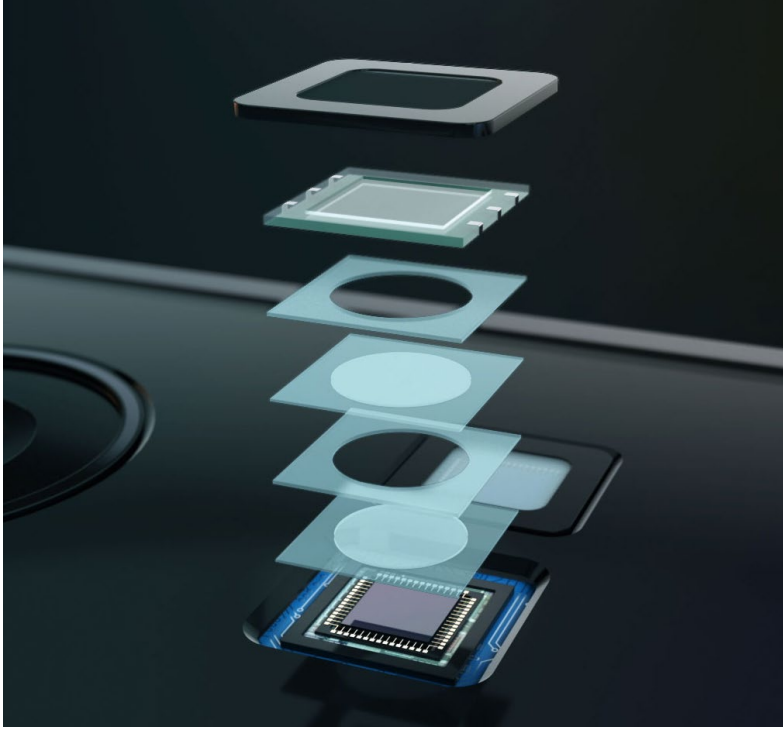

FLEXINITY®

Structured glass solutions for precise 3D imaging and sensing

In 3D imaging and sensing, performance is shaped before the first signal is processed. Optical alignment, material stability and reproducible geometries determine whether sensing systems can capture reliable information at scale.

SCHOTT FLEXINITY® is a portfolio of structured glass substrates, wafers and panels for compact optical modules that require precise spacing, defined apertures, tight tolerances and stable material behavior.

For applications such as structured light, Time-of-Flight and stereo vision, FLEXINITY® enables customized glass structures that support reliable integration, signal consistency and scalable manufacturing.

Why structured glass matters in sensing

Sensing systems operate under extreme constraints: short optical paths, compact module designs, high integration density and high-volume production. Even small variations in thickness, alignment or geometry can affect signal quality, depth accuracy and device-to-device consistency.

FLEXINITY® helps reduce this variation by combining precise glass structuring with selected SCHOTT glass materials. This supports reproducible optical behavior across compact sensing modules and high-volume manufacturing environments.

Application areas

FLEXINITY® structured glass solutions can support optical module architectures for:

- Structured light systems
- Time-of-Flight sensing
- Stereo vision and camera-based depth perception
- Face authentication and biometric sensing
- 3D depth mapping
- Compact camera and sensor modules

Key advantages

Defined alignment and spacing
Customized through-structures support stable optical paths, spacing and positioning inside compact sensing modules.

Tight feature and position tolerances
Feature size and position tolerances of < 20 µm, equivalent to ±10 µm, support precise alignment with partner components.

Compact structure design
Structure radii down to 25 µm and minimum structure dimensions of 100 µm enable miniaturized layouts.

Reliable material behavior at scale
Stable optical, mechanical and thermal properties support reproducible sensing performance in high-volume production.

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How FLEXINITY® supports 3D sensing architectures

Structured light

Structured light systems rely on defined optical patterns and stable module geometry. FLEXINITY® can support compact module layouts where precise spacing, apertures and alignment features help preserve projected pattern quality and detection consistency.

Time-of-Flight

ToF systems depend on stable signal paths and precise optical integration. Structured glass components can support defined spacing and positioning for emitters, receivers, filters, diffusers or related optical elements.

Stereo vision

Stereo vision requires precise geometric alignment across multiple optical paths. FLEXINITY® structured glass can support module designs where dimensional stability and reproducible geometry help maintain depth accuracy and consistency.

Related integration technologies

FLEXINITY® can contribute to compact optical systems that combine structured glass with advanced integration approaches such as:

- Wafer-level optics
- Nanoimprint lithography
- Metalenses
- Diffractive optical elements
- Filter and sensor integration

In wafer-level optics, tight control of TTV, warp and alignment is critical because deviations can shift focus and degrade signal quality across sensor arrays.

Standard structuring capabilities*	
Thickness range (depending on glass type)	0.1 – 3.3 mm
Format	Max. 600 mm in diameter 
Layout	Through structures according to customer specifications
Structuring radius	Down to 25 µm
Feature size tolerance	< 20 µm (equiv. ± 10 µm)
Minimum dimension of structure element	100 µm
Wall taper angle	90° ± 0.5°
Edge exclusion zone	≥ 3 mm
Position tolerance of features	< 20 µm (equiv. ± 10 µm)
Thickness tolerance**	± 10 µm – ± 20 µm
TTV (total thickness variation)**	≤ 10 µm – ≤ 15 µm

* Limitations in feature design and demands deviating from these capabilities will be evaluated upon request
** Depending on thickness and size

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